

Turning to the Examiner's rejections of claims 1-7 under 35 U.S.C. 103(a) as being obvious over various combinations of Matsubara (U.S. Patent 5,202,715) with Takahashi et al (U.S. Patent 6,001,465), JP '417 or JP '218. As shown in Figure 1B of the invention, the claimed inventive light shielding blade material is designed for use in an optical apparatus such as a camera. In the blade material, a substrate 1 is composed of a plastic film having a pair of surfaces opposed to each other. A shield coating 2 is formed on each surface of the substrate 1. The shield coating 2 is capable of blocking an incident light. Specifically, the shield coating 2 is composed of a paint resin containing a carbon black. A reinforcement member 4 is disposed on each shield coating 2. The reinforcement member 4 is composed of thermosetting resin prepreg sheet reinforced with fibers arranged in an alignment direction, and is hardened to laminate with the substrate 1 through the shield coating 2. The thermosetting resin prepreg sheet 4 contains no carbon black. A lubricant coating 3 is formed on each reinforcement member 4. The lubricant coating 3 has a black appearance and a lubricity sufficient to suppress a surface friction. The outer lubricant coating 3 and the inner shield coating 2 are separated from each other by the intermediate reinforcement member 4.

By such a structure, the light shield coating 2 is interposed and protected between the reinforcement member 4 and the substrate 1. Accordingly, the light shielding property is never damaged by abrasion caused by a shutter operation. Even if the resin layer reinforced with carbon fibers is used for the reinforcement member, there is no need to knead carbon black into a matrix resin of the prepreg of the reinforcement member, because the light shielding property is assured exclusively by the light shield coatings 2 formed on the surfaces of the substrate 1. Thus, an inexpensive prepreg of general purpose can be used. The light shield coatings 2 are made of resin coatings. Accordingly, there is less increase in weight compared with metal films such as plating film, and the resin coating is inexpensive as compared with a metal vapor deposition film. Such a feature is never taught by any of the cited prior art references. ←

Matsubara ('715) discloses a plate member for use as material of light shielding blades. As shown in Figures 2 and 3, the plate member has a laminate construction including a reinforced resin oriented continuous (long) carbon fibers, and reinforced resin surface layers

composed of a resin matrix with continuous carbon fibers uni-directionally oriented in a direction substantially orthogonal to the direction of the fibers in the intermediate layer. The plate material can be obtained by subjecting the laminate of the prepreg sheets to heat pressing. A black coating (dry lubricant application) may be affected in this step for the purposes such as improvement in the light shielding effect, reduction in the surface reflectivity, improvement in the appearance and improvement in the surface lubricating property (see column 4, lines 6-12).

Thus, Matsubara ('715) teaches the surface black coating applied to the surface of the plate, but never teaches or suggests the intermediate shield coating interposed and protected between the substrate and the reinforcement member.

Takahashi et al ('465) disclose a light shielding blade for cameras made of para-orientation aromatic polyamide film. As shown in Figure 1A, the aramid film is coated on both sides or faces thereof with a black ink 4 having light shielding and solvent resistant properties. Further a black coating (lubricant coating) 5 is applied over the black ink 4, thereby adjusting the optical density to 8 or higher. However, these coatings 4, 5 are disposed on the surface of the blade.

In another example shown in Figure 1B, three sheets of the aramid film 2 each having a comparatively small thickness of 2 to 30 microns are laminated to form a light shielding blade. Similarly, the coatings 4, 5 are simply disposed on the surface of the blade.

A further example shown in Figure 1C is basically the same as Figure 1B. The former differs from the latter in that at least one sheet of an aluminum foil 21 is sandwiched between two sheets of aramid films 2 at an interface therebetween. Because of this insertion of the aluminum foil 21, no carbon black is added to either sheet of aramid film 2. However, this reference fails to teach the intermediate shield coating composed of a paint resin containing a carbon black.


The JP '417 and JP '218 references cited for teaching the use of biaxially oriented base film and the use of polyparaphenylene benzobixoxazole for the fibers of the reinforcement member, respectively, each do not cure the deficiencies of Matsubara ('715) or Takahashi et al ('465) highlighted above by teaching those features that are missing from Matsubara ('715) and

Takahashi et al ('465).

As a consequence, the teachings of Matsubara ('715), Takahashi et al ('465), JP '417 and JP '218, either alone or in combination, fail to teach the above mentioned features of the claimed invention, fail to provide a suggestion for combining the teachings to achieve a light shielding blade having the features instantly claimed, and the Examiner has provided no motivation why one of ordinary skill in the prior art would select the features not shown for combination with the teachings of Matsubara ('715), Takahashi et al ('465), JP '417 and JP '218, as is required to establish a *prima facie* case of obviousness in MPEP Section 2143 and 2143.01. In light of these failings, the rejection of claims 1-23 under 35 U.S.C. 103(a) over the combined teachings of Matsubara ('715) with Takahashi et al ('465), JP '417 or JP '218 is improper and must be withdrawn.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise, which could be eliminated through discussions with applicants' representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Respectfully submitted,



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Mark-up of Amendments

IN THE CLAIMS:

Please amend claims 1 and 2 as follows:

1. (Amended) A light shielding blade material for use in an optical apparatus, comprising:

a substrate composed of a plastic film having a pair of surfaces opposed to each other;

a shield coating being capable of blocking an incident light and being formed on each surface of the substrate, the shield coating being composed of a paint resin containing a carbon black;

a reinforcement member disposed on each shield coating, the reinforcement member being composed of a thermosetting resin prepreg sheet reinforced with fibers arranged in an alignment direction, and hardened to laminate with the substrate through the shield coating, the thermosetting resin prepreg sheet containing no carbon black; and

a lubricant coating having a black appearance and a lubricity sufficient to suppress a surface friction, the lubricant coating being formed on each reinforcement member such that [an upper layer of] the lubricant coating and [a lower layer of] the shield coating are separated from each other by [an intermediate layer of] the reinforcement member.

2. (Amended) The light shielding blade material according to claim 1, comprising two reinforcement members wherein a [the] reinforcement member contains fibers aligned in parallel to fibers contained in the other reinforcement member, and wherein the substrate is composed of a plastic film being stretched bidirectionally in primary and secondary directions orthogonal to each other and being disposed relative to the reinforcement members such that the primary direction of the plastic film can be [freely] set at a desired angle relative to the alignment direction of the fibers.